

Ditteusen, E. CR Calsbeeg 24: 31-37 (1944) A case of simple segregation
in *Pachomyces italicus*.

1:1 segregation of a morphological gene (L.) long down - short cell type.

Spore lines are of two types & when they sporulate, they bud true (particularly
ll). LL sporulate only rarely. Hybridization attempted L x l &
yielded substantially the P₁, again segregating 1:1. L x L rare; l x l freq.

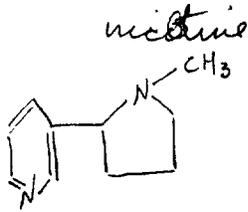
Twombly, G.H., + D. Meese, *Cancer Research* 6: 82- (1946) The growth of mammalian tumors in fertile eggs. Is a fertile ovum produced?

Rebecca R39, Bagmouseca 755 + the RC mouse ca. were grown in fertile hen's eggs.

Tumor producing activity could not certainly be dissociated from viable cells.

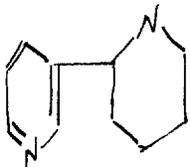
Dawson, R. Alkaloid formation in plants. Zoology Colloquium 3/6/46.

Tobacco alkaloids:



nicotine

Nor-nicotine is demethylated nicotine.
nic + normic = fairly constant in various strains



Anabasine.

Also N-methyl anabasine

Nicotyline is a 1'-2"ene - nicotine.

Pyridyl common; side group varies. A similar series in cissaras, cactes alkaloids.

Accumulation of nicotine in leaves is not modified by most procedures on leaves.

Grafting tomato top to tobacco roots \rightarrow nicotine containing leaves + fruit.

Tobacco/tomato \rightarrow no alkaloid

Solomonson, U. V., Chem. Rev. 37: 481- 1946. Synthetic Esters
gives the relations between their structure and their activity.

Res. Labs
Hoffman La-Roche Inc
Nutley 10, N.J.

Thaugnot, G. Rev. Cytol et Cytophysiol. Vig. 5:169-264 (1941)
Substances mitochondriales et cellules végétales

Shemin, D. JBC 162:297-307 (1946) The biological conversion of l-serine to glycine.

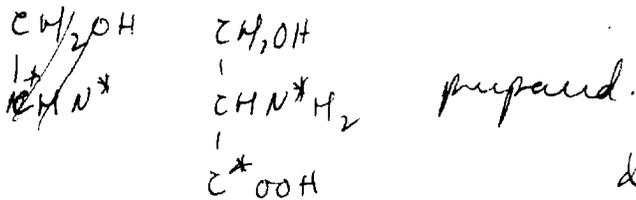
Benzyl ac. and labelled comp. injected into rats, guinea pigs.

N^{15} in hippuric ac. determined + comp'd \bar{c} that in the labelled injectum.

The dilution factor was lowest for glycine (2.8, 2.4 resp.) and v.

high for ^{al-} glutamic (1500, 450...) $NH_3 \rightarrow$ 400, 20 resp. in the two spp. d-serine was rel. ineffective. l-serine was 5.5, 3.9.

l-glutamic is 45, 10.



Ratio of $\frac{N^*}{C^*}$ in hippo glycine

demonstrates the direct conversion and

eliminates ethanotamine. Nor is $\begin{array}{c} COOH \\ | \\ CHNH_2 \\ | \\ COOH \end{array}$ the intermediate, unless

reversible deamination. N-benzoylglycine \nrightarrow hippuric.

Probably no reversible deamination \bar{c} glycine...

Leiria, SE, Genetics 30:84-1945. Mutations of bacterial viruses affecting their host range.

Coli B. Viruses α , ν .

B/α , ~~B/ν~~ readily obtained. Also $B/\alpha\nu$. Also B/α_1 , etc. morph. variants.

B/ν more difficult.

$\nu + B/\nu \rightarrow 10^{-5}$ to 10^{-7} clear plaques. A new virus, active on B/ν can be isolated. ν' . It can be obtained from single plaque isolates.

No virus active on B/α_1 found. But $\alpha \rightarrow \alpha'$ active on B/α_2 , not active on B/α_1 .

$\nu' \rightarrow$ a smaller plaque count on B/ν than B (.2 to .6). This is not due to $\nu' \rightarrow \nu$. After absorption by B/ν , the plating efficiency does not vary. It is likely that ν' is less readily absorbed by B/ν than by B . ν' interferes \bar{c} ν . (Self-interference also likely).

α' is identical \bar{c} α on B . Plating efficiency .3-.7 on B/α_2 . Absorption is lower.

Delbruck analysis, \bar{c} complication of bacterial mutation to resistance & sp. multiplication. Fluctuation \rightarrow conclusion of mutation. Some cultures had a mutant population \bar{c} smallest burst size indicating mutation in cell.

Serologic identity of α & α' ; ν & ν' is tableted. Bact. resistance independent: B/α sens. to ν' .

$B/\alpha_1 \rightarrow B/\alpha_1\nu'$ but was sens. to α

mutant can be obtained from $B/\alpha_1\nu' \rightarrow B/\alpha_1\nu'\alpha$ resist. to α, ν, ν'

McDowell, -

Genetic factors - High incidence in CSB. Incidence related to "amt. of inheritance" of leukemic strain. Genes vs. cytoplasmic elements.

f, heterozygotes: differences in reciprocal hybrids. Maternal effect?!

Variability in f, - isolates. f, x p, (n). Low incidence (to 1/4.) Still problems of segregation due to imperfect penetrance + masking of phenotype. Binding tests essential. (Test of genotype)

RR x rr

↓
Rr. 1:1 ratio in progeny expected for monogenic inheritance.

Stoli = Little-Stones. "S"

resistant

Why backcross rather than inbreed??

(Ask for reports) CSB. (1 generation = 100%??) (Selection??)

RR x rr

↓

S x c

Rr x rr

↓

X sc

X So

Rr, rr

test by x n !!

↓ Test progeny by mating to S ♀. Variability in backcross

~~FA~~ F1s genetically uniform, reduced incidence. ∴ non genetic determin.

all crosses to high strains CSB. Nursing CSB ♀♀ inhibits leukemogenesis.

Planned as high uniformity as possible.

7 each ♂ x 10 ♀

D used as B albino.

heterozygous between families.

Effect on 1/2 or homozygotes.

age or litter no?

P1 RR x rr



F1 Rr x Rr



F2 Rr, rr.

Test the progeny of these.

x rr. Some lines should have no leaks.
Some up to 50% leaks.

Variability found between ♂♂ is 1-2

2 & 5 differ in 3 genes on pigment. 2 correlated \bar{c} leaks.
transmission of a longevity factor from ♂♂. non sp. leaks

but had a much influence as leak genes...

These affect greatest in ♂♂. Also ♂♂ - fighting; cystitis; these
improved competition + improved cystitis.

- Age of mother at parturition. (Stoli) Young \rightarrow higher incidence.

50 families are not adequate for multivariate analysis.

Test # of genes??

Effect of nursing greater on hybrids. (Sex-linked testis)

Young removed as born... divided between 3 strains of nurses.

No mice got 1st milk (everything fostered). 4/6-1s.

1. Reciprocal hybrids still vary. S-nursing protects in both directions except in final % leukemia.

⊖ B nurse, the cytoplasmic effect is much greater, and affects final rate.

Freese, HC + JW Gowen, *Genetics*, 27:212 - (1942) Analysis of data
on X-ray induced visible ^{gene} mutations in *D. melanogaster*.

Timofeef-Resovsky's data indicate no significant detection of mutation,
or mutability of any allele in the w series.

Hauffmann, BP, *Genetics* 27:537- 1942. Reversion from rough to wild type in *D. melan.*

Sex-linked recessive. Deactivated at low temps. rst^3 flies are a mosaic of smooth + rough facets, rough part. in σ^7 . Associated \bar{c} along inversion from rst to the right of bobbed. left bush is in 3C2-3C4 region. rst^2 is allelic (see Zurenberg 1937).

$Rst \sigma^7$ In (1) $rst^3, rst^3 carbb \bar{c}$ 4000₂ X-rays and X Y females \rightarrow revertants, which were sterile (heterozygous hemizygous for inversion).

Then radiated σ^7 x $brst^3$ σ^7 . 21,104 F, 9% examined.

171 were Rst phenotypically. 72 analyzed. 25 sterile 7 lost
23 $rst \bar{c}$ poor expression; 17 revertants. (ca. 4%).

16 had karyos in proximal heterochromatin of the $brst^3$ X chrom.
4 were revertants; 2 also transloc. 7 unip. transl. 2 could
be maintained as homozygotes & were σ^7 fertile. After two years
some rst flies appeared again (cytological modifications).

There exist some data that new arrangements have weak spots.

Other genes tested. No reversion of forked or pearl found.

Gruneberg, H. J. Genetics 34:169-89 1937 The position effect proved
by a spontaneous reversion of the X-chromosome in *D. melan.*

Zeffers, AB+CS Stone
1939.

Reverse Mutations & the position effect. Gen 24: 73
The w^{m5} and its desc. U. Tex. 4032: 190-200

Seidie, et al., Gen. 24:88-1939 Reversal of lethal factors.

Olewe, (P., PNAS 26:452-4 (1946) A reversion to wild type assoc.
= crossing over in D. melan.

^(lz¹)
Glossy and Spectacle (lz³) are sexlinked, recessive, alleles of lz,
are in ~~the~~ the dl-49 inversion.

lz¹ Bx / lz³ f ♀♀ x lz³ Bx ♂♂, 11/5584 2857 ♀♀
were wild type + dominant to lz¹ or lz³. The inversion was not lost.

Ten of the offspring were Bx. ∴ the crossing over occurs
~~between~~ in the inversion, and has been shown to be between v and lz.

The complementary type was not picked up. The only compound
which reverts is lz¹ lz³

Roblin, Richard O., Chem Rev. 38(2): 255-377 (1946).

Metabolite Antagonists. ✓

Chemotherapy, American Cyanamid Co., Stamford Res. Labs., Ct.

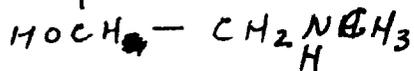
Fosdick, L.S., et al., JACS 68:840-1946 pressor Amine contg.

nuclear Cl and F.

mil.

Synthesis.

p F-styrene



Lertan, A. SACS 68:835 - 1946. The microbiological synthesis of cobalamin - a theory concerning its inhibition.

decomposition of B_{12} increased by addn of Fe (.18-.36 mM/l)
do. decreased production by *C. acetobutylicum*. Traces of catalase +
 $N_2 \rightarrow 2O_4$ mic. yield. H_2O_2 neutralized.

Fatajot, R. Rev. Can. Biol., 5:9-47 (1946) L'effet biologique
primaire des radiations et la structure des microorganismes.

R✓

Wahl, R., Ann Inst Pasteur 72:73-80 (1946) Influence de la composition du milieu sur la bactériophagie.

B₁, Ca needed by some strains. Causes multiplication & lysis.

Raayer, M + R. Satajet, Ann Inst Pasteur 72: 89 - 1946. Accumulation du nombre de bactériophages en présence de bactéries stériles par irradiation.

S. paratyphus Y6R; phage C16. X-Rays 33kV 30mA.

8 - 16000 r/min. 10^9 cells irradiated + given doses of 150000 - 400000 r (p5 = 12, 32 resp!!) Tested for ability to form colonies + for titre of added phage.

Non-irradiated cells from ~~5~~ 11×10^3 to 146×10^6 in 6 h. Irradiated ~~from~~ to 800×10^3 . There was no increase in irradiated bacteria.

after 4 h. in culture, irradiated bacteria did not support phage.

1 single c.d. / 200 bacteria would allow phage multipl. found.

Increase in phage about same at 400000 as 100000 r.

Expl. on basis of growth giving giant forms.

Woolley, D.W. JBC 163:481- 1946. Reversal of the action of phenyl pantothenate by certain amino acids.

Sp. requiring ~~pp~~ ~~ppant~~ are not reversibly by ϕ mit. Sp. synth. prot are not protected by it from ϕ mit. H.C. reversed ϕ mit. Amino acids which were active were histidine, glut, prol, glyc + asp. S. cerevisiae. Similar results in L. casei

Keithwood, S + PH Phillips. JOC 163: 251 (1942). (Anti-
insectal effect of γ -hexachlorocyclohexane.

S. curvica.

Insecticidal.

Carlson, J.G. *Biol Bull* 90:109- 1946. Polytamni viscosity changes in different regions of the grasshopper mandible during mastication.

Whitaker W.L. PSEBM 61:420- 1946 Postalvein ligations and
the celiac fistula in the rat.

Grant Mills Ann Arbor